

Appl. No. 09/683,364
Amdt. dated June 06, 2005
Reply to Office action of March 08, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

5 Claims 1-19 (Canceled)

Claim 20 (Currently amended): A microdisplay pixel cell device, the device comprising:

- a semiconductor substrate defined with a plurality of active areas;
- two gates, each of the gates covering a portion of the active areas;
- 10 four sources and two drains, the sources and the drains being in the active areas not covered by the gates;
- a first dielectric layer, the first dielectric layer covering the two gates, the four sources and the four drains, the first dielectric layer comprising at least one row select contact plug to electrically connect to the one of the gates;
- 15 at least one row select line, the row select line being atop the first dielectric layer, the row select line being electrically connected to one of the gates through the row select contact plug;
- a second dielectric layer, the second dielectric layer being atop the first dielectric layer and covering the row select line;
- 20 four pixel cap top plates, each of the pixel cap top plates being atop the second dielectric layer and partially covering one of the active areas and one of the gates, and being electrically connected to one of the sources;
- at least one first contact plug, the first contact plug being in the first dielectric layer and the second dielectric layer for electrically connecting one of the sources and one of
- 25 the top plates;
- at least one capacitor dielectric layer, the capacitor dielectric layer being atop the surfaces of the top plates; and

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at least one pixel cap bottom plate, the pixel cap bottom plate being atop the second dielectric layer and covering all of the two gates, the four sources, the two drains, the four top plates and the capacitor dielectric layer.

- 5 Claim 21 (Previously presented): The device of claim 20 wherein each of the gates comprises a gate oxide layer, a polysilicon layer or a metal silicide layer.

Claim 22 (Canceled)

- 10 Claim 23 (Previously presented): The device of claim 20 wherein at least one second contact plug is comprised in the first dielectric layer and the second dielectric layer for electrically connecting one of the drains to a video data line.

- Claim 24 (Original): The device of claim 20 wherein the row select line is composed of a
15 metal and is used as a scan line of the microdisplay.

Claim 25 (Previously presented): The device of claim 20 wherein the bottom plate and the top plates are composed of a metal.

- 20 Claim 26 (Previously presented): The device of claim 25 wherein the bottom plate and the top plates are composed of titanium (Ti), titanium nitride (TiN), aluminum (Al), copper (Cu) or an alloy of above-mentioned materials.

Claim 27 (Canceled)

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Claim 28 (Original): The device of claim 20 wherein the microdisplay is a reflective liquid crystal on silicon (LCOS) display.

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Claim 29 (Currently amended): A microdisplay pixel cell device, the device comprising:

a semiconductor substrate;

a transistor block formed on the semiconductor substrate, the transistor block comprising a plurality of transistors comprising a plurality of sources;

5 a first dielectric layer covering the transistors, the first dielectric layer comprising at least one row select contact plug to electrically connect to a gate of the transistors;

at least one row select line formed atop the first dielectric layer, the row select line being electrically connected to the gate through the row select contact plug;

10 a second dielectric layer formed atop the first dielectric layer to cover the row select line;

a plurality of pixel cap top plates formed atop the transistors and positioned on the second dielectric layer, each of the pixel cap top plates being electrically connected to one of the sources;

at least one capacitor dielectric layer formed atop the top plates; and

15 ~~at least one pixel cap bottom plate formed atop the second dielectric layer to cover the whole transistor block,~~ the capacitor dielectric layer and all of the plurality of pixel cap top plates.

Claim 30 (Currently amended): The device of claim 29 wherein at least one first contact
20 plug is comprised in the first dielectric layer and the second dielectric layer for electrically connecting ~~a source~~ one of the sources of the transistors and one of the top plates.

Claim 31 (Previously presented): The device of claim 29 wherein at least one second
25 contact plug is comprised in the first dielectric layer and the second dielectric layer for electrically connecting a drain of the transistors to a video data line.

Claim 32 (Previously presented): The device of claim 29 wherein the row select line is

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composed of a metal and is used as a scan line of the microdisplay.

Claim 33 (Previously presented): The device of claim 29 wherein the bottom plate and the top plates are composed of a metal.

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Claim 34 (Previously presented): The device of claim 29 wherein the bottom plate and the top plates are composed of titanium (Ti), titanium nitride (TiN), aluminum (Al), copper (Cu) or an alloy of above-mentioned materials.

10 Claim 35 (Previously presented): The device of claim 29 wherein the transistor block comprises two gates, two common drains, and four sources to define four transistors.

Claim 36 (Previously presented): The device of claim 35 wherein the microdisplay pixel cell device comprises four top plates to cover the four transistors in the transistor block,
15 respectively.

Claim 37 (Previously presented): The device of claim 29 wherein the microdisplay is a reflective liquid crystal on silicon (LCOS) display.

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